



Research Findings presented in partial fulfillment of undergraduate honors degree.

U.S. GMO Labeling and Consumer Perceptions

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13 April 2017

Executive Summary:

Farmers have rapidly been adopting genetically modified crop varieties but consumers have a mixed view of this technology. The debate on whether to require mandatory labeling of genetically modified organisms (GMOs) on food labels was partially settled on July 29th, 2016 when President Obama signed “S. 764: Biotechnology Disclosure Act” into public law. The law mandates (a) the disclosure of bioengineered ingredients to consumers via a weblink, symbol, or phone number and (b) that a study assess the ability of consumers to access this disclosure information. This work analyzes survey responses from 525 adults to investigate whether U.S. consumers are able to obtain information per the disclosure methods allowed in the legislation. The survey probes further to investigate consumer perceptions of genetically modified organisms and if consumers would use the tools available to access disclosure about bioengineered ingredients. Findings from the survey show that 95% of respondents have the ability to access information with the 5% unable to access the information primarily from the lowest income group. This provides the United State Department of Agriculture information relevant to how they can implement the law and particular demographic factors to address to ensure the disclosed bioengineered information is accessible to all people.

Keywords: food labels, GMOs, biotechnology, United States Department of Agriculture, policy, information, consumer perception, legislation

1.Introduction:

In 2002, Oregon held what was the first state ballot initiative to require the labeling of bioengineered ingredients. The initiative, while defeated and thus not mandating labeling, was just the beginning of what would become a 14 year-long campaign by agricultural and food groups advocating to omit labels informing consumers about the nature of ingredients in bioengineered foods, often citing the rigorous approval process that deemed the bioengineered plants to be safe. The debate escalated in 2012 as part of California's Proposition 37, which would have mandated the labeling of bioengineered foods. To provide scope of how serious these campaigns were the Coalition Against The Costly Food Labeling Initiatives sponsored by Farmers and Food Producers spent over \$44 million dollars in 2012 to defeat this ballot initiative while groups supporting the initiative spent over \$8 million (California Secretary of State 2012). In 2013 another ballot initiative would follow attempting to mandate GMO labeling in the state of Washington that was defeated, again with large financial assistance from the agricultural and food industry where over \$22 million was raised (Washington Public Disclosure Committee 2013).

While agricultural and food industry groups successfully fought statewide ballot initiatives they weren't able to prevent state legislatures from taking action. On May 8th, 2014, The Vermont Consumer Protection Rule CP 121 – Labeling Foods Produced with Genetic Engineering was passed through the Vermont legislator and the governor signed it. Vermont's law would go into effect on July 1st, 2016 providing food manufacturers two years to come into compliance with the law. The law required manufacturers to place one of the following phrases on packages of food products: "produced with genetic engineering", "partially produced with genetic engineering", or "may be produced with genetic engineering" (State of Vermont 2016).

In response to the Vermont legislation, large parts of the agricultural and food industries began to seek federal action that would omit such package labeling and to get federal pre-emption to negate the Vermont law. Over the course of the next two years legislation was introduced in the House of Representatives by Representative Mike Pompeo (Kansas-R). The Safe and Accurate Food Labeling Act of 2014 would attract attention and get two congressional hearings, one in the House Agriculture Committee and one in the House Energy and Commerce Committee. Ultimately this bill wouldn't pass but was again reintroduced in 2015 again by Representative Pompeo and this time with Representative Butterfield (D-North Carolina). Shortly after, the House Energy and Commerce committee would waive jurisdiction to allow solely the House Agriculture Committee to handle the bill. In July of

2015 the H.R. 1599, Safe and Accurate Food Labeling Act of 2015 passed through the House of Representatives and onto the Senate floor where it received hearings but was ultimately not taken up. A similar bill was introduced in the Senate by Senator Roberts (R-Kansas) but this was not able to receive the 60 votes required for cloture in a vote on March 16th, 2016 stalling the bill.

With time running short before the enforcement of Vermont's Consumer Protection law 121, a bipartisan compromise was reached by Ranking member of the Senate Committee on Agriculture, Nutrition and Forestry Senator Debbie Stabenow (D-Michigan) and Senator Pat Roberts (R-Kansas) on June 23rd, 2016 - just seven days prior to the enforcement of the Vermont Law. Vermont's law would end up going into effect for a few days before the legislation that would go on to pass through to President Obama, S.764: The National Biotechnology Disclosure Act.

On July 29th, 2016 when President Obama signed S. 764 Biotechnology Disclosure Act into public law a long and contentious public policy debate was settled: how, or even if, to label bioengineered food ingredients. The final legislation which was passed and signed into law compromised by not requiring mandatory labeling and instead mandating just the disclosure of such ingredients. Specifically, the law allowed for food manufacturers to disclose if food products contained bioengineered ingredients in three ways. First, the bill allowed for on-package text labeling similar to what the Vermont law required. Another option was to utilize a symbol or an electronic or digital link. The decision on how to disclose is left up to a manufacturer. Additionally, small manufacturers will have the option to utilize a phone number to provide the disclosure information (National Biotechnology Disclosure Standard 2016).

All of this is subject to a study which is required to be carried out by the USDA. The study was required in the language of the bill and prescribes that the USDA determine the ability of consumers to utilize the disclosure methods that the legislation outlined. Specifically, the USDA must determine the availability of wireless Internet or cellular networks which would be critical to consumers being able to access the disclosure when manufacturers use digital disclosure methods. Secondly, the availability of landline telephones in stores must be explored, which would be the primary method of obtaining information from small manufacturers. The USDA must also study the challenges that small retailers and rural retailers will face - presumably concerning the ability for consumers in these locales to access the internet. Along with this the efforts of retailers and other entities to address the technological challenges faced will be studied. The study also requires a cost benefit analysis of installing in retail stores electronic or digital link scanners and other evolving technology that could provide the information (National Biotechnology

Disclosure Standard Act 2016). This is the phase of the implementation process that the USDA is in as of December 2016 and aspects of this study pertaining to consumers will be the primary focus of this study.

2. Materials and Methods

An online survey was administered between October 17th, 2016 and October 28th, 2016 to 525 adult participants recruited by Qualtrics LLC from the United States. The survey included questions about personal and household demographics, the questions analyzed in this research and questions about three other food policy topics not analyzed here. The respondents were recruited in a manner to achieve national representativeness however, weighting was still utilized to adjust for differences between the sample and U.S. Census figures using a race, age, and income weighting scheme to further enhance representativeness. Ethics approval was received from The Ohio State University Office of Responsible Research Practices' Institutional Review Board (#2016E0645).

A total of 12 questions will be analyzed here. The first set of questions asked respondents about their personal access to smartphones to connect to the wireless internet or a cellular network, if they can access these while at the grocery store they most often shop at, and if the grocery store has access to a landline phone. The respondents were asked to answer yes, no, or unaware to these questions. Next, respondents were asked about their interest in knowing whether their food contained genetically modified ingredients (GMOs). If they answered yes to this question, they were asked to rate their level of interest as "somewhat interested" or "very interested." Following this, respondents were asked "When it comes to Genetically Modified Ingredients (GMOs), how important are the following publicized concerns to you?". They were presented a list of 16 publicized concerns and asked to rate how important each was with the response options of extremely important (coded =5), very important (=4), moderately important (=3), somewhat important (=2), not important (=1). Finally, respondents were asked to answer how likely they were to use both a smartphone and a instore-scanner to scan a QR code to determine if ingredients were genetically modified with the response options of extremely likely (coded =5), somewhat likely (=4), neither likely or unlikely (=3), somewhat unlikely (=2), extremely unlikely (=1).

Statistical analysis was conducted in Stata Version 14. All analyses use the constructed sample weights. Pairwise t-tests were used to determine if the average ratings for each of the 16 criteria were statistically different from each other.

3.Results

The analysis will first assess the items mandated to be studied by the language of the bill and then analyze generalized concerns of GMOs and GMO labeling.

The first mandated study item was the availability of wireless internet or cellular networks available to consumers. 84.75 percent of the survey respondents responded they have a smartphone with access to the wireless internet or cellular network. When asked to think about the store they regularly shop at and if they have access to the wireless internet or cellular network while in the store 82.56 percent of respondents who knew (uncertain answers were not used in the analysis) stated they had access with 17.44 percent responding they do not. The other option to obtain disclosure information would be by calling through a store phone in which 91.61 percent of respondents stated they had access to make a phone call while in the grocery store, through a personal phone or store landline phone. Just 4.87 percent of respondents answered no to both of the above questions. This information means 95.13 percent of respondents have the ability to access GMO labeling information as detailed in the National Biotechnology Disclosure Standard.

Of all respondents who don't have access to the wireless internet, a cellular network or the ability to make a phone call while in the store, 58.6 percent are in the lowest income bracket. At a 5 percent significance level, the lowest income group is significantly less likely to have access to wireless internet, a cellular network, and access to make a phone call while in the grocery store. Income was the only demographic factor that was significantly different between those with and without access.

Survey respondents were also asked about their general GMO interest. 81 percent of consumers wanted to know if their food contained genetically modified ingredients. Of this 81 percent, 61 percent stated they were very interested in knowing this information as opposed to just 39 percent who stated they were somewhat interested. Analysis of demographic factors again were explored to determine if differences in responses varied for income, race, age, education, gender and presence of children in the household. Regression analysis revealed significant greater interest in knowing GMO information among respondents who identified with a race other than white or black, the youngest age group (18-44), and the middle income groups (see table 2).

Respondents were also asked about how important publicized concerns were to them. Table 3 displays average ratings to each publicized concern. The publicized concerns were chosen from a broad array of items

concerning GMOs. Unknown long term health effects had a significantly higher rating than the second most highly rated concern. The next group of concerns, although they are ranked in the table in order of their average rating, are not significantly different from each other at the 5 percent level (in the table, concerns that share a common letter in the third column are not statistically different from each other).

The last questions focus on whether consumers would utilize QR codes through their smartphones or a store-provided scanner to access GMO disclosure information. Figure 1 shows how respondents answered for using their smartphones and Figure 2 displays how respondents answered for using an in-store scanner. 52.61 percent of consumers are somewhat likely or very likely to use a smartphone and 54.17 percent of consumers are somewhat likely or very likely to use an in-store scanner. On the contrary, 27.81 percent are somewhat unlikely or very unlikely to use their smartphones and 25 percent are somewhat unlikely or very unlikely to use an in-store scanner. These responses were checked across demographic factors for significant differences at the 5 percent level. The only factors that were significant for both responses were age with the oldest group (65+) being significantly less likely to use QR codes, both the 25,000-49,999 and the 50,000+ income groups being significantly more likely and those who have graduated college being statistically more likely to use QR codes in both instances.

4. Discussion

While not universal, the vast majority of respondents in this study's sample do have the technological capabilities to access the biotechnology information via the methods proposed in the National Biotechnology Disclosure Act, which supports the notion that the implementation of this legislation can improve transparency among consumers with regard to the presence of genetically engineered content in food. While more than 95% of this sample has access to the technology that enables the proposed modes of disclosure, a smaller majority of respondents stated they were very likely or somewhat likely to utilize the technologies to access this information. Particular attention should be provided to demographic factors, if the disclosure is to be equally accessible by all. In particular, low income groups both showed significant differences in their ability to access the information as well as their likelihood to scan a QR code.

More research is needed about geographic location and its influence on consumers' capabilities to access the information. Our survey didn't ascertain whether respondents were from a rural, suburban, or urban area, which

may have an impact on the availability and accessibility of the disclosure information. In addition, a retailer analysis would be insightful in determining which grocers feel they have the technological infrastructure (wifi, cellular network service, in-store scanners) available and what the cost of implementing these technologies into stores that don't currently have them would be.

The survey also revealed that consumers still have concerns about GMO technology and its long-term health impacts. This remains although major science organizations have deemed the technology to be completely safe (National Academies of Science, American Medical Association, American Cancer Association, Food and Drug Administration, ect). Continued outreach will be necessary as agricultural and food companies look to utilize this technology into the future. This survey results provide an indicator as to where outreach should and can be directed.

Moving forward, determining how levels of concern impact purchasing behavior will be important. As many companies move towards sourcing non-GMO ingredients, determining exactly which concerns are driving consumer purchasing behavior will help biotechnology companies and those with an interest in the future capabilities of biotechnology tailor outreach about GMOs.

Table 1. Sample Characteristics (n=525).

Characteristic	Sample%¹	Census %
Age		
18-64	84.5	83.1
65+	15.6	16.9
Income		
< \$25,000	34.4	22.1
\$25,000 - \$49,999	23.7	23.0
\$50,000+	41.84	54.9
Race		
White	77.2	72.4
Black	11.4	12.6
Other or Multiple	11.4	15.0
Education		
High School or Less	33.2	40.5
Some College/Assoc. Deg.	32.5	29.3
College or More	34.3	30.6
Male	49.13	49.2
Household Size	2.71	2.65

¹ Percentages after results are weighted by race, income, gender, age.

Table 2: GMO Interest Demographics

Demographic Factor ¹		Coef. ²	Std. Err.	t	P> t	[95% Conf. Interval]	
Race							
	Black	-0.04	0.06	-0.74	0.46	-0.15	0.07
	Other	-0.15	0.06	-2.81*	0.01	-0.26	-0.05
Income							
	\$25,000-\$49,500	-0.17	0.05	-3.61*	0.00	-0.26	-0.08
	\$50,000+	-0.08	0.04	-1.87	0.06	-0.17	0.00
Age							
	65+	0.12	0.05	2.44*	0.02	0.02	0.21
Education							
	high school graduate	-0.12	0.09	-1.40	0.16	-0.30	0.05
	some college	-0.09	0.09	-0.97	0.34	-0.26	0.09
	graduated college	-0.11	0.09	-1.22	0.22	-0.29	0.07
	graduate school or more	-0.20	0.11	-1.87	0.06	-0.41	0.01
	technical school/other	-0.13	0.12	-1.06	0.29	-0.37	0.11
Gender							
	Female	-0.01	0.03	-0.41	0.68	-0.08	0.05
_cons		1.39	0.08	16.39	0.00	1.22	1.55

Question: Are you interested in knowing if your food contains Genetically Modified Ingredients (GMOs)?

1 Demographic Categories and regressions were run against base groups for each demographic: race=white, income=under \$24,999, age=18-64, education=less than high school, gender=male. 2 Rating scale: Yes=1, No=2

Table 3: Importance of Publicized GMO Concerns

Publicized Concern	Average ¹	Statistical Differences ²					
Unknown long-term health effects	4.15						
Increased risk of antibiotic resistance	4.01	A					
Unknown or unanticipated toxins produced	4.00	A					
Increased use of pesticides	3.97	A					
Unknown long term environmental effects	3.91	A	B				
Genetic contamination of the environment	3.83		B	C			
Increased use of herbicides	3.82		B	C	D		
Unknown or unanticipated allergens introduced	3.78		B	C	D	E	
Risks to wildlife & Insects	3.77			C	D	E	F
Spread of disease resistance to weeds	3.69						F
Risks to species diversity	3.69					F	G
Spread of herbicide tolerance to weeds	3.67					F	G
Spread of pest resistance to undesirable weeds	3.65					F	G
Control of agriculture by biotechnology companies	3.64					F	G
Ethical issues with genetic modification of nature	3.62					F	G
Damage to topsoil	3.51						G

Question: "When it comes to Genetically Modified Ingredients (GMOs), how important are the following publicized concerns to you?"

1. Rating scale: 5= Very Important, 4= Very Important, 3= Moderately Important, 2= Somewhat Important, 1= Not Important

2 Criteria that share a common letter have ratings that are not statistically different from one another at the 5% level

Figure 1. Response to “How likely is it that you would scan QR Codes with your smartphone to determine if ingredients were genetically modified?” (N = 525)

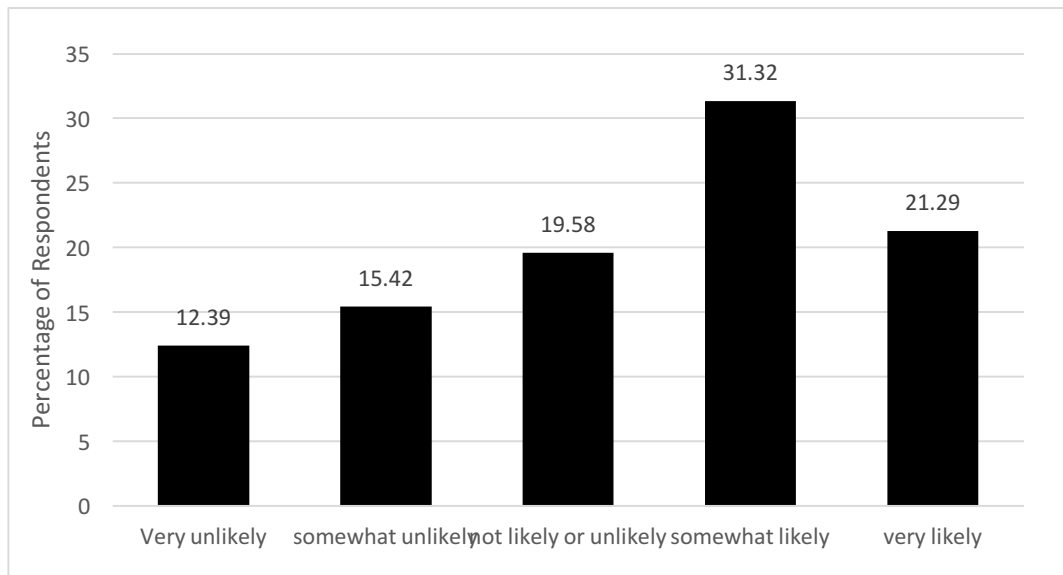
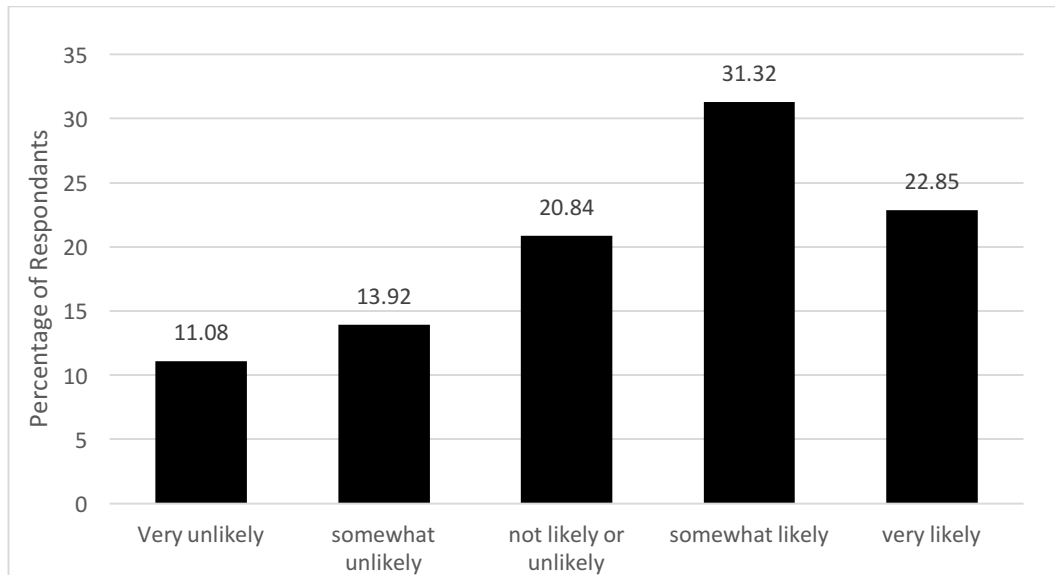


Figure 2. Response to “How likely is it that you would scan QR Codes with an in-store scanner to determine if ingredients were genetically modified?” (N = 525)



Acknowledgments: This survey was conducted with funds provided exclusively by the Ohio State University.

Conflicts of Interest: The authors declare no conflict of interest. The funding sponsors had no role in the design of the study; in the collection, analyses, or interpretation of data; or in the writing of the manuscript.

Appendix: Survey

Consumer Perceptions of Food Labeling Policies

We would now like to ask some questions about you and about the food you buy, prepare and eat in your home in order to inform ongoing food policy discussions taking place in the United States. These questions are being asked by Professor Brian Roe of Ohio State University and will take about 10 minutes to answer. Your participation is voluntary and you may skip any questions for any reason. This study does not require the study coordinator to access any of your personal information. You will not be asked to provide any personal or sensitive information. Information provided to this study does not have the potential to damage your financial standing, employability or reputation, or place you at risk of criminal or civil liability. Efforts will be made to keep your study-related information confidential. If you have questions about the questions in this part of the study you may contact Brian Roe at 614-688-5777. For questions about your rights as a participant in this study or to discuss other study-related concerns or complaints with someone who is not part of the research team, you may contact Ms. Sandra Meadows in the Office of Responsible Research Practices at 1-800-678-6251.

Are you willing to answer these questions?

Yes [links to questions]

No [ends survey]

Are you the primary food purchaser and preparer in your household?

☐ No (1)

☐ Yes (2)

Answer If Are you the primary food purchaser and preparer in your household? No Is Selected

How much food purchasing and preparation do you do?

☐ None (1)

☐ occasionally (2)

☐ Nearly half (3)

What is your age?

☐ 18-24 (1)

☐ 25-44 (2)

☐ 45-64 (3)

☐ 65+ (4)

Are you male or female?

☐ Male (1)

☐ Female (2)

Including yourself, how many people are there living in your household?

- ☐ One (1)
- ☐ Two (2)
- ☐ Three (3)
- ☐ Four (4)
- ☐ Five (5)
- ☐ Six (6)
- ☐ Seven (7)
- ☐ Eight or more (8)

In your household, how many children are under the age of 6?

In your household, how many children are between 6-11?

In your household, how many children are between 12-17?

What is the last grade of school you completed?

- ☐ Less than a high school graduate (1)
- ☐ High School graduate (2)
- ☐ Some college (3)
- ☐ Graduated college (4)
- ☐ graduate school or more (5)
- ☐ technical school/other (6)

Is your total annual household income from all sources and before taxes?

- ☐ Under \$15,000 (1)
- ☐ 15,000 to \$24,999 (2)
- ☐ \$25,000 to \$34,999 (3)
- ☐ \$35,000 to \$49,999 (4)
- ☐ \$50,000 to \$74,999 (5)
- ☐ \$75,000 to \$99,999 (6)
- ☐ Over \$99,999 (7)

What is your race?

- ☐ White Non-Hispanic (1)
- ☐ Black Non-Hispanic (2)
- ☐ White Hispanic (3)
- ☐ Black Hispanic (4)
- ☐ Unspecified Hispanic (5)
- ☐ Asian/Chinese/Japanese (6)
- ☐ Native American/American Indian/Alaska Native (7)
- ☐ Native Hawaiian or other Pacific Islander (8)
- ☐ Other race (9)
- ☐ multiple racial identifications (10)

Section 2

On a scale from 1-5, how concerned are you about the way foods are produced and processed in the United States?

Not Concerned at All		Somewhat Concerned		Very Concerned	
	1	2	3	4	5

_____ Level of Concern

On a scale from 1-5, how concerned are you about the way foods are produced and processed in other countries?

Not Concerned at All		Somewhat Concerned		Very Concerned	
	1	2	3	4	5

_____ Level of concern

Please list specific concerns with food production and processing in the United States?

Please rank in order of importance factors you look at in purchasing food

- _____ Nutritional Facts Panel (1)
- _____ Date labels (use by, best by, ect.) (2)
- _____ Ingredient information (GMO, organic, ect.) (3)
- _____ Sustainability information (fairtrade, rainforest alliance, ect) (4)

Section 3

Do you have a smartphone with access to wireless internet or a cellular network?

- ☐ Yes (1)
- ☐ No (2)

In thinking about the store where you most frequently purchase groceries, do you have access to the wireless internet or cellular network while in the store?

- ☐ Yes (1)
- ☐ No (2)
- ☐ Don't know (3)

Do you have access to make phone calls, from a personal device or store landline phone, while at the grocery store?

- ☐ Yes (1)
- ☐ No (2)

Have you noticed electronic and digital link scanners in your grocery store (such as one seen in this picture below)?

- ☐ Yes (1)
- ☐ No (2)



Answer If Have you noticed electronic and digital link scanners in your grocery store (such as one seen in... Yes Is Selected

If you have scanned a QR Code, was it for a food product?

- ☐ Yes (1)
- ☐ No (2)
- ☐ Not sure/ Can't remember (3)

Answer If Have you noticed electronic and digital link scanners in your grocery store (such as one seen in... No Is Selected

If you haven't scanned a QR Code, why not? (select all that apply)

- ☐ Wrong type of phone (1)
- ☐ Don't know how to do it (2)
- ☐ Find it inconvenient (3)
- ☐ Not sure what scanning it does (4)

Are you interested in knowing if your food contains Genetically Modified Ingredients (GMOs)?

- ☐ Yes (1)
- ☐ No (2)

Answer If Are you interested in knowing if your food contains Genetically Modified Ingredients (GMOs)? Yes Is Selected

If yes, would you say you are somewhat interested or very interested in if your food contains Genetically Modified Ingredients (GMOs)?

- ☐ Somewhat interested (1)
- ☐ Very interested (2)

When it comes to Genetically Modified Ingredients (GMOs), how important are the following publicized concerns to you? (1 = not important, 2 = somewhat important, 3 = moderately important, 4 = very important, 5 = extremely important)

- _____ a. Unknown or unanticipated allergens introduced (1)
- _____ b. Unknown or unanticipated toxins produced (2)
- _____ c. Unknown long term health effects (3)
- _____ d. Increased risk of antibiotic resistance (4)
- _____ e. Control of agriculture by biotechnology companies (5)
- _____ f. Unknown long term environmental effects (6)
- _____ g. Genetic contamination of the environment (7)
- _____ h. Increased use of pesticides (8)
- _____ i. Increased use of herbicides (9)
- _____ j. Spread of pest resistance to undesirable weeds (10)
- _____ k. Spread of disease resistance to weeds (11)
- _____ l. Spread of herbicide tolerance to weeds (12)
- _____ m. Ethical issues with genetic modification of nature (13)
- _____ n. risks to species diversity (14)
- _____ o. Damage to topsoil (15)
- _____ p. Risks to wildlife & insects (16)
- _____ q. Other – specify and rate: (17)

How likely is it that you would scan QR codes with your smarthphone to determine if ingredients were genetically modified?

- ☐ Extremely unlikely (1)
- ☐ Somewhat unlikely (2)
- ☐ Neither likely nor unlikely (3)
- ☐ Somewhat likely (4)
- ☐ Extremely likely (5)

How likely is it that you would scan product QR codes with an in-store scanner to determine if ingredients were genetically modified?

- ☐ Extremely unlikely (1)
- ☐ Somewhat unlikely (2)
- ☐ Neither likely nor unlikely (3)
- ☐ Somewhat likely (4)
- ☐ Extremely likely (5)

Section 4

Do you agree that the federal government should be allowed to regulate how food companies are able to use the term "healthy" on food packages?

- ☐ Strongly disagree (1)
- ☐ Somewhat disagree (2)
- ☐ Neither agree nor disagree (3)
- ☐ Somewhat agree (4)
- ☐ Strongly agree (5)

Rate the following based on importance of what the government should consider when determining how to determine if a food should be declared healthy (1=disagree, 2 = somewhat agree, 3 = neither agree nor disagree, 4 = somewhat agree, 5 = agree):

- _____ a. low sugar (1)
- _____ b. low fat (2)
- _____ c. low saturated fat (3)
- _____ d. no trans-fat (4)
- _____ e. non GMO (5)
- _____ f. high animal welfare standards (6)
- _____ g. low calorie (7)
- _____ h. high vitamins (8)
- _____ i. low sodium (9)
- _____ j. high in protein (10)
- _____ k. no artificial ingredients (11)
- _____ l. high in antioxidants (12)
- _____ m. other (please list) (13)

Section 5

Do you agree that the federal government should be allowed to regulate how food companies are able to use the term "natural" on food packages?

- ☐ Strongly disagree (1)
- ☐ Disagree (2)
- ☐ Somewhat disagree (3)
- ☐ Neither agree nor disagree (4)
- ☐ Somewhat agree (5)

Do you agree that a food labeled "natural" should provide nutritional or health benefits?

- ☐ Strongly disagree (1)
- ☐ Somewhat disagree (2)
- ☐ Neither agree nor disagree (3)
- ☐ Somewhat agree (4)
- ☐ Strongly agree (5)

How important are the following when considering if a food is "natural"? (1 = not at all important, 2 = slightly important, 3 = moderately important, 4 = very important, 5 = extremely important)

- _____ a. The food contains no artificial/synthetic ingredients (1)
- _____ b. The food contains no artificial/synthetic colors (2)
- _____ Please select slightly important (3)

If 'Please select slightly important...' is Not Equal to 2, Then Skip To End of Block

How important are the following food processing techniques when considering if a food is "natural"? (1 = not at all important, 2 = slightly important, 3 = moderately important, 4 = very important, 5 = extremely important)

- _____ a. No Fortification (adding vitamins or minerals) (1)
- _____ b. No Pasteurization (2)
- _____ c. No artificial/synthetic additives (3)
- _____ d. No artificial/synthetic flavorings (4)
- _____ e. no irradiation (5)

How important are the following farming practices when considering if a food is "natural"? (1 = not at all important, 2 = slightly important, 3 = moderately important, 4 = very important, 5 = extremely important)

- _____ a. no pesticide usage (1)
- _____ b. no herbicide usage (2)
- _____ c. Organic production methods (3)
- _____ d. No Biotech seeds (4)
- _____ e. Free-range animal husbandry practices (5)
- _____ f. Cage-free animal husbandry practices (6)
- _____ g. No antibiotics (7)

Section 6

When you see dates printed on foods, how strongly do you agree with the following statements (strongly disagree = 1, somewhat disagree = 2, neither agree nor disagree = 3, somewhat agree = 4, strongly agree = 5)

- _____ The food becomes unsafe to eat after the label date has passed. (1)
- _____ The food quality decreases after the label date has passed. (2)
- _____ The importance of the label date for food safety depends on the type of food. (3)

How likely are you to throw out the following food if it is past the date printed on the package? (1 = very unlikely, 2 = somewhat unlikely, 3 = neither likely nor unlikely, 4 = somewhat likely, 5 = very likely):

- _____ a. Milk (1)
- _____ b. Cheese (2)
- _____ c. Yogurt (3)
- _____ d. Packaged Fresh Vegetables (4)
- _____ e. Packaged Fresh Fruits (5)
- _____ f. Fresh meats (6)
- _____ g. Packaged Deli Meats (7)
- _____ h. Eggs (8)
- _____ i. Fresh Fish (9)
- _____ j. Cereals (10)
- _____ k. Condiments (11)

Please indicate the information the following food date phrases would appear to be suggesting to you (1 = food safety, 2 = food quality, 3 = depends on type of food)

- _____ Best if Used By (1)
- _____ Expires On (2)
- _____ Best Before (3)
- _____ Use By (4)

<https://osu.az1.qualtrics.com/ControlPanel/Ajax.php?action=GetSurveyPrintPreview>

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